REMARKS

Claims 1-4 and 6-35 are all the claims pending in the application. Claims 1-4, 6-10, and 16-35 stand rejected on prior art grounds. Claims 11-15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claims and any intervening claims. Applicants respectfully traverse these rejections based on the following discussion.

I. The Prior Art Rejections

Claims 1-4, 6-10, 20-25, and 30-35 stand rejected under 35 U.S.C. §102(b) as being anticipated by Keller, et al. ("an Active Approach to Characterizing Dynamic Dependencies for Problem Determination in a Distributed Environment," 2001), hereinafter referred to as Keller. Claims 16-19 and 36-29 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Keller, in view of Kar, et al. ("Dynamic Dependencies in Application Service Management," June 2000), hereinafter referred to as Kar. Applicants respectfully traverse these rejections based on the following discussion.

The claimed invention provides a method that determines and compares activity periods of first and second logical components to identify correlations between the components. Moreover, the method determines whether the activity period of the first logical component contains the activity period of the second logical component. When a positive correlation is identified, the existence of a dependency relationship between the first and second logical components is recorded. Thus, fault management can respond to

a problem affecting the first logical component by analyzing the set of logical components having dependency relationships with the first logical component.

In the rejection, the Office Action argues that the prior art of record discloses many features of the claimed invention. However, the prior art of record does not determine and compare activity periods of different logical components to identify correlations between the logical components. Both Keller and Kar are not concerned with the start and end times of activity periods. For example, Keller teaches a static method (the components can be perturbed in any order), wherein the start and end times do not relate to one another. Therefore, as explained in greater detail below, Applicants respectfully submit that the prior art of record does not teach or suggest the claimed invention.

Applicants traverse the rejections because the prior art of record fails to teach or suggest the claimed features of determining a first activity period for said first logical component and a second activity period for said second logical component, wherein said determining comprises determining a first start time and a first end time for said first logical component and a second start time and second end time for said second logical component and comparing said first activity period and said second activity period to identify correlations between said first logical component and said second logical component wherein said comparing comprises determining whether said first start time is before said second start time and whether said first end time is after said second end time. Such features are defined in independent claims 1, 20, 22, 23, 24, 25, 27, and 30 using similar language.

Instead, Keller applies a "workload" to a system to "perturb" the components of the system (Keller, p. 6, para. 1). The "perturbation patterns" of the different system components are studied to determine dependencies between the individual system components (Keller, p. 6, paras. 2-3). However, the "perturbation patterns" of the system components are unrelated to the "activity periods" of the components. The "perturbation patterns" do not determine the start and end times of the "activity periods" of the components. Furthermore, comparing the "perturbation patterns" of the system components does not determine whether said first start time is before said second start time and whether said first end time is after said second end time.

To the contrary, as described in paragraph 0017 of Applicants' disclosure, the step of monitoring run-time activity of a component may include monitoring an activity period corresponding to the period between estimated start and end times for the processing of a request, or monitoring other run-time activity metrics for the monitored components such as the number of invocations within a monitoring period.

As further described in paragraph 0021 of Applicants' disclosure, one embodiment determines whether an activity period of a first component contains the activity period of the second component to determine whether the first component has a synchronous dependency relationship with the second component. The first component's activity period contains the second component's activity period if two conditions are met: the start time of the second component is no earlier that the start time of the first component, and the end time of the second component is no later than the end time of the second component.

Accordingly, Applicants submit that Keller applies a "workload" to a system to "perturb" the components of the system, wherein "perturbation patterns" of the different system components are studied to determine dependencies between the individual system components. However, the "perturbation patterns" of the system components are unrelated to the "activity periods" of the components. The "perturbation patterns" do not determine the start and end times of the "activity periods" of the components. Furthermore, comparing the "perturbation patterns" of the system components does not determine whether said first start time is before said second start time and whether said first end time is after said second end time.

Therefore, it is Applicants' position that the proposed combination of Keller and Kar fails to teach or suggest the claimed features of determining a first activity period for said first logical component and a second activity period for said second logical component, wherein said determining comprises determining a first start time and a first end time for said first logical component and a second start time and second end time for said second logical component and comparing said first activity period and said second activity period to identify correlations between said first logical component and said second logical component wherein said comparing comprises determining whether said first start time is before said second start time and whether said first end time is after said second end time, as defined in independent claims 1, 20, 22, 23, 24, 25, 27, and 30.

Applicants traverse the rejections because the prior art of record fails to teach or suggest the claimed features of determining a first activity period for a first logical component and a second activity period for a second logical component, and comparing

the first activity period and the second activity period to identify correlations between the first logical component and the second logical component. Such features are defined in independent claims 1, 20, 22, 23, 24, 25, 27, and 30 using similar language.

Additionally, the prior art of record fails to teach or suggest the claimed features of determining whether the activity period of the first logical component contains the activity period of the second logical component (dependent claim 6).

More specifically, as described in the abstract of Applicants' disclosure, a dependency generator identifies correlations between the run-time activity of the monitored components. For synchronous monitored systems, the dependency generator calculates an activity period for monitored components and determines which component's activity periods contain the activity periods of other components.

Moreover, as described in paragraph 0019 of Applicants' disclosure, a set of monitoring agents cooperate with existing counters implemented within the monitored components. The monitoring agents generate an event on completion of processing of a request by the monitored resource, and the events are used to calculate an activity period which contains the period of execution of the component. A correlation identifier then compares the activity periods for different components to identify correlations, such as identifying components which have an activity period containing the activity period of other components.

As further described in paragraph 0021 of Applicants' disclosure, one embodiment determines whether an activity period of a first component contains the activity period of the second component to determine whether the first component has a

synchronous dependency relationship with the second component. The first component's activity period contains the second component's activity period if two conditions are met: the start time of the second component is no earlier that the start time of the first component, and the end time of the second component is no later than the end time of the second component.

To the contrary, unlike the claimed invention, the prior art of record does not compare the activity periods of the logical components to identify correlations. Both Keller and Kar are not concerned with the start and end times of activity periods. Instead, Keller and Kar teach a static method, wherein the start and end times do not relate to one another.

For example, as described on page 6, paragraphs 1-2, of Keller, a method applies active perturbation to the system in order to unveil its dependencies. As the workload is applied, components of the system are perturbed at varying levels of intensity while the system instrumentation is used to record the system's behavior, performance, and availability. A key decision to make when implementing the perturbation step lies in the selection of perturbation patterns, that is, what components should be perturbed and in what order. A good starting point is to systematically perturb every component in the system, one component at a time. The ordering may be arbitrary. More complex perturbation patterns involving multiple components can also be used to uncover dependencies on replicated or redundant components.

Thus, Keller perturbs components one at a time or in some arbitrary order. The system and method of Keller does not determine activity periods of the components and

does not compare the first activity periods to identify correlations between the components.

Furthermore, as described in on page 10, paragraph 3 – page 11, paragraph 1 of Keller, the method fits a regression line relating the mean log response time to the perturbation level. The regression line is the key to automatically identifying and characterizing dependencies: a statistically nonzero slope for this line indicates the existence of a dependency, and the magnitude of the slope characterizes its strength.

Thus, Keller merely discloses correlating response times to the applied workload. Keller does not determine when an element will be working on the workload by defining activity periods.

Accordingly, Applicants submit that the prior art of record does not determine and compare activity periods of different logical components to identify correlations between the logical components. Both Keller and Kar are not concerned with the start and end times of activity periods. For example, Keller teaches a static method (the components can be perturbed in any order), wherein the start and end times do not relate to one another.

Therefore, it is Applicants position that the prior are of record fails to teach or suggest the claimed features of determining a first activity period for a first logical component and a second activity period for a second logical component, and comparing the first activity period and the second activity period to identify correlations between the first logical component and the second logical component (independent claims 1, 20, 22, 23, 24, 25, 27, and 30). Additionally, the prior art of record fails to teach or suggest the

claimed features of determining whether the activity period of the first logical component contains the activity period of the second logical component (dependent claim 6).

Therefore, it is Applicants' position that the prior art of record does not teach or suggest many features defined by independent claims 1, 20, 22, 23, 24, 25, 27, 30 and that such claims are patentable over the prior art of record. Further, it is Applicants' position that dependent claims 2-4, 6-19, 21, 26, 28, 29, and 31-35 are similarly patentable, not only because of their dependency from a patentable independent claims, but also because of the additional features of the invention they defined. In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw the rejections.

II. Formal Matters and Conclusion

In view of the foregoing, Applicants submit that claims 1-4 and 6-35, all the claims presently pending in the application, are patentably distinct from the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary. Please charge any deficiencies and credit any overpayments to Attorney's Deposit Account Number 09-0441.

Respectfully submitted,

Dated: October 19, 2007

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